

FIG.2

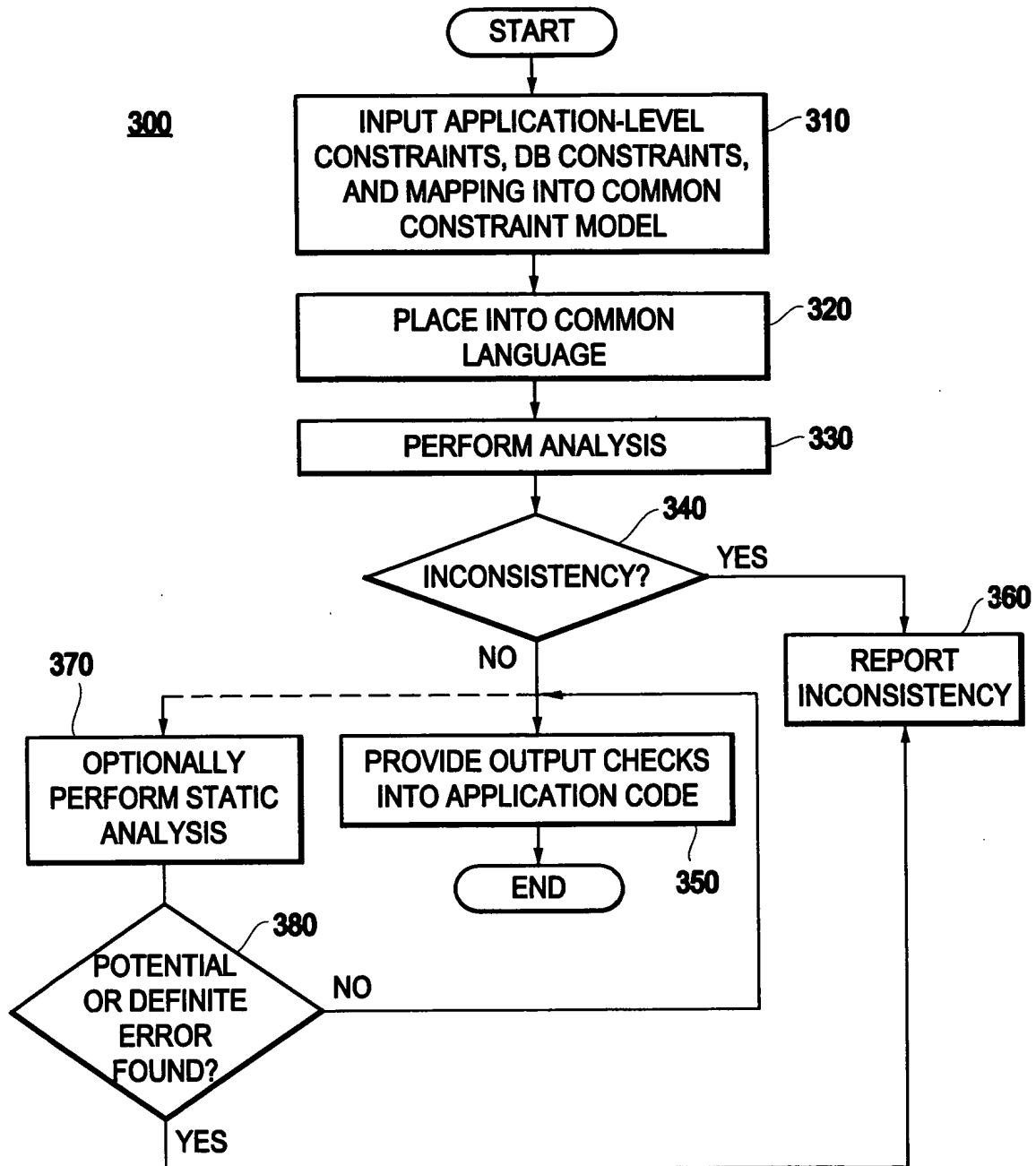


FIG.3

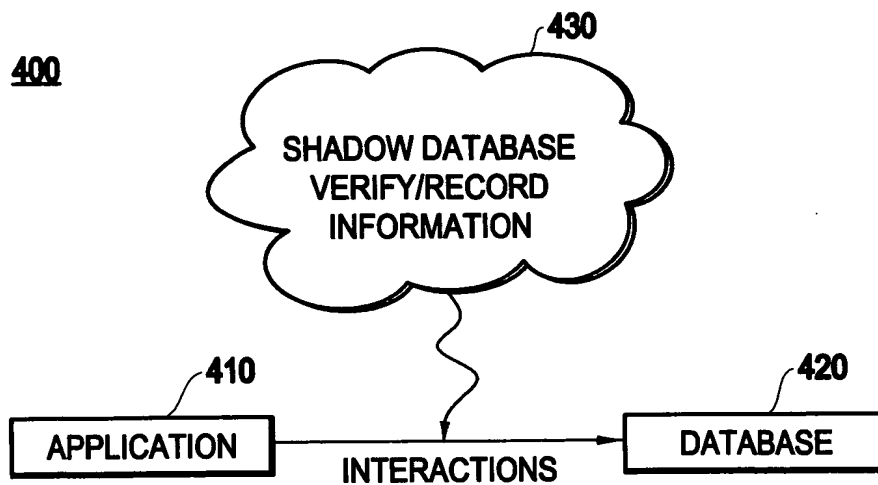


FIG.4

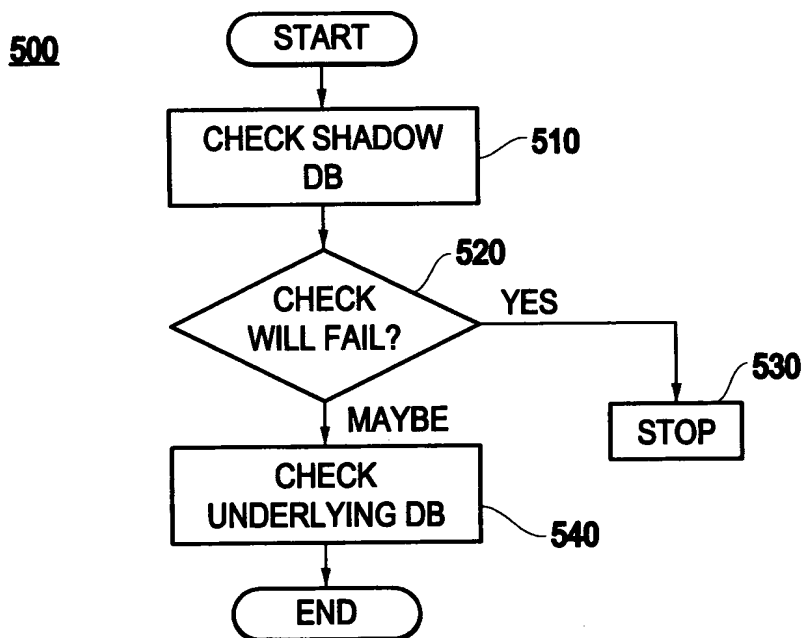


FIG.5

```
DISCONNECT ALL;
DROP DB FOO1;
CREATE DB FOO1;
CONNECT TO FOO1;
```

```
CREATE TABLE ODED.DCODES(
C CHARACTER(1) NOT NULL,
CHECK(
(C = 'A') OR (C = 'B') OR (C = 'C') OR
(C = 'D') OR (C = 'E')),
PRIMARY KEY (C)
);
```

```
CREATE TABLE ODED.CUSTOMER(
CUSTOMERID BIGINT NOT NULL,
NAME CHARACTER(20) NOT NULL,
CHECK (
((CUSTOMERID >= 100000) AND
(CUSTOMERID <= 200000)) OR (
(CUSTOMERID >= 200000000) AND
(CUSTOMERID <= 400000000) ) ),
PRIMARY KEY (CUSTOMERID) );
```

```
ALTER TABLE ODED.CUSTOMER DATA
CAPTURE CHANGES NOT VOLATILE;
```

```
CREATE TABLE ODED.DISCOUNT(
DISCOUNTCODE CHARACTER(1) NOT NULL,
PERCENT INTEGER NOT NULL,
DELAY INTEGER NOT NULL,
CUSTID BIGINT NOT NULL,
-- CHECK (
-- (AMOUNT > 1) AND (AMOUNT <= 100000) ),
-- CHECK ( (ORDERNUM >= 0) AND (ORDERNUM
<= 100000000)),
CHECK(
( (1 <= DELAY) AND (DELAY <= 7) ) OR ( (10
<= DELAY) AND (DELAY <= 30) ) OR ( (45 <=
DELAY) AND (DELAY <= 60) ) ),
CHECK(PERCENT in (5, 10, 15) OR ( (20
<= PERCENT) AND (PERCENT <= 30) ) ),
CHECK(DISCOUNTCODE in ('A',
'B', 'C', 'D', 'E') ),
PRIMARY KEY (CUSTID, DISCOUNTCODE),
FOREIGN KEY (CUSTID) REFERENCES
ODED.CUSTOMER (CUSTOMERID) ON DELETE
CASCADE,
```

```
FOREIGN KEY (DISCOUNTCODE)
REFERENCES
ODED.DCODES (C)
);
```

```
ALTER TABLE ODED.DISCOUNT DATA
CAPTURE CHANGES NOT VOLATILE ;
```

```
CREATE TABLE ODED.INVENTORY(
ITEMNUMBER CHARACTER(8) NOT NULL,
AMTINSTOCK INTEGER NOT NULL,
CATEGORY VARCHAR(20) NOT NULL,
CHECK (
(AMTINSTOCK >= 0) AND (AMTINSTOCK
<= 10000) ),
CHECK (
( ( ITEMNUMBER Like 'EU%') AND
( ITEMNUMBER > 'EU000000') AND
( ITEMNUMBER < 'EU999999') ) OR
( ( ITEMNUMBER Like 'US%') AND
( ITEMNUMBER > 'US000000') AND
( ITEMNUMBER < 'US999999') ) OR
( ( ITEMNUMBER Like 'WL%') AND
( ITEMNUMBER > 'WL000000') AND
( ITEMNUMBER , 'WL999999') )
),
PRIMARY KEY (ITEMNUMBER) );
```

```
ALTER TABLE ODED.INVENTORY DATA
CAPTURE CHANGES NOT VOLATILE;
```

```
CREATE TABLE
ODED.CUSTOMERCATEGORIES
CUSTOMERID BIGINT NOT NULL,
CATEGORY VARCHAR(20) NOT NULL,
-- CHECK (
-- (AMTINSTOCK >= 0) AND (AMTINSTOCK
<= 10000) ),
PRIMARY KEY (CUSTOMERID, CATEGORY),
FOREIGN KEY (CUSTOMERID) REFERENCES
ODED.CUSTOMER (CUSTOMERID) ON DELETE
CASCADE
);
```

```
ALTER TABLE ODED.INVENTORY DATA
CAPTURE CHANGES NOT VOLATILE ;
```

```
CREATE TABLE ODED.ORDER (
ORDERNUM BIGINT NOT NULL,
CUSTID BIGINT NOT NULL,
AMOUNT DECIMAL NOT NULL,
TAX DECIMAL NOT NULL,
DISCOUNTCODE CHARACTER(1) NOT NULL
```

FIG.6A

```
CHECK ( (AMOUNT > 1) AND (AMOUNT <=
100000) ),
CHECK ( (ORDERNUM >= 0) AND (ORDERNUM <=
10000000) ),
CHECK ( (TAX <= .4 * AMOUNT) AND ( (TAX =
25) OR (TAX = 50) OR (TAX >= 100) ) ),
PRIMARY KEY (ORDERNUM),
FOREIGN KEY (CUSTID) REFERENCES
ODED.CUSTOMER (CUSTOMERID) ON DELETE
CASCADE,
FOREIGN KEY (DISCOUNTCODE) REFERENCES
ODED.DCODES (C)
);
```

```
ALTER TABLE ODED.ORDER DATA CAPTURE
CHANGES NOT VOLATILE;
```

```
CREATE TABLE ODED.ORDERDETAILS(
ORDERNUM BIGINT NOT NULL,
ITEM# CHARACTER(8) NOT NULL,
NOITEMSREQUESTED INTEGER NOT NULL,
NOITEMSSHIPPED INTEGER NOT NULL,
NOITEMSRECEIVED INTEGER NOT NULL,
CHECK ( (NOITEMSREQUESTED > 0) AND
(NOITEMSREQUESTED < 101) ),
CHECK (NOITEMSRECEIVED <=
NOITEMSSHIPPED),
CHECK(NOITEMSSHIPPED <=
NOITEMSREQUESTED),
PRIMARY KEY (ORDERNUM, ITEM#),
FOREIGN KEY (ITEM#) REFERENCES
ODED.INVENTORY (ITEMNUMBER) ON DELETE
CASCADE,
FOREIGN KEY (ORDERNUM) REFERENCES
ODED.ORDER (ORDERNUM) ON DELETE CASCADE
);
```

```
ALTER TABLE ODED.ORDERDETAILS DATA
CAPTURE CHANGES NOT VOLATILE;
```

```
CREATE TRIGGER CatTrigger
AFTER INSERT ON
ODED.CUSTOMERCATEGORIES
REFERENCING NEW AS xxx
FOR EACH ROW MODE DB2SQL
WHEN (NOT EXISTS
(SELECT * FROM ODED.INVENTORY
WHERE
xxx.CATEGORY=ODED.INVENTORY.CATEGORY
))
```

```
SIGNAL SQLSTATE '7599
('Cannot insert category field ')
```

```
CREATE TRIGGER InvTrig1
AFTER DELETE ON ODED.INVENT
REFERENCING OLD AS xxx
FOR EACH ROW MODE DB2SQL
WHEN (EXISTS
(SELECT * FROM
ODED.CUSTOMERCATEGORIES
WHERE
xxx.CATEGORY=ODED.CUSTOMERCATEGORIES.
CATEGORY
))
```

```
SIGNAL SQLSTATE '7600
('Cannot delete referenced category field ')
```

```
insert into ODED.INVENTORY
values ('EU123456', 10, 'grinders')
```

**FIG.6B**

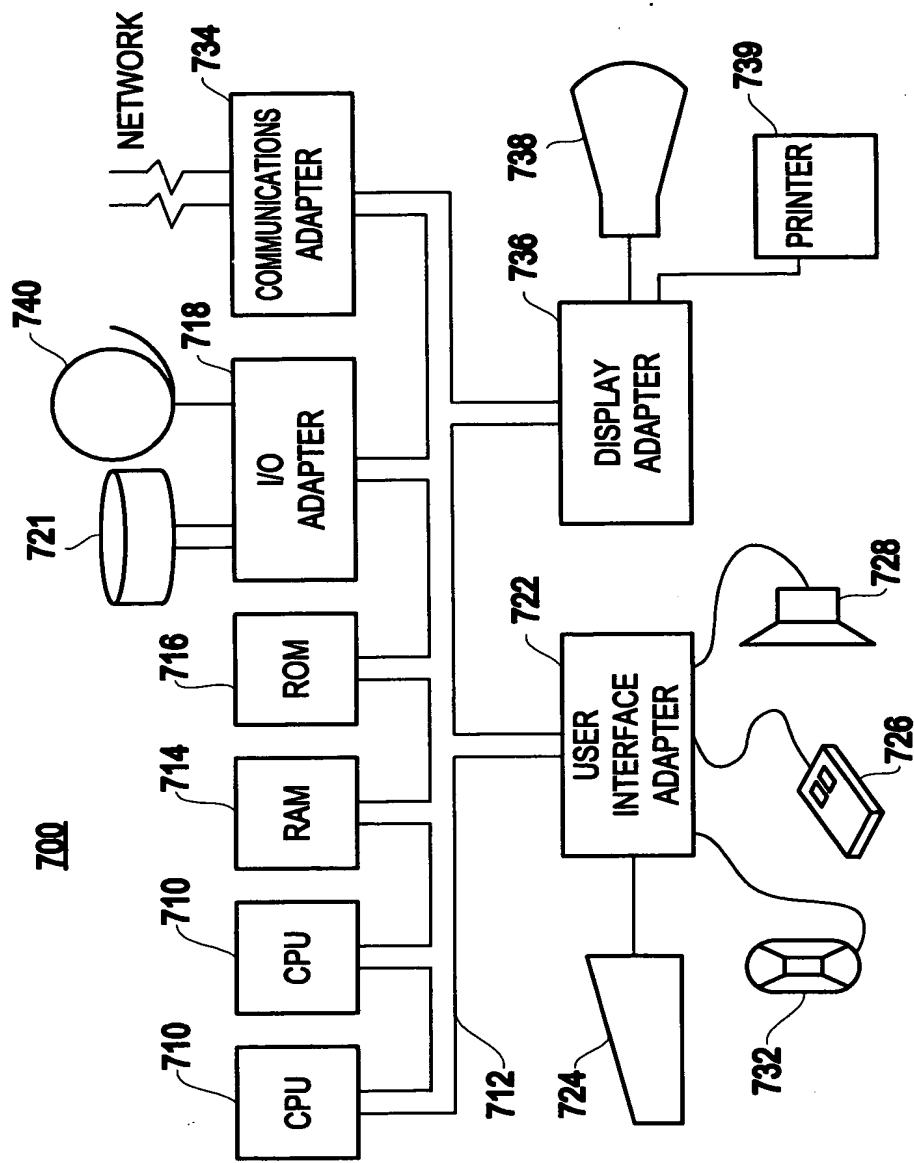


FIG.7

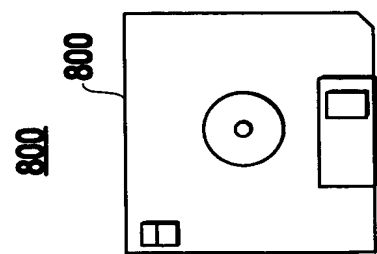


FIG.8